Curriculum Overview – D&T

At Pate's we cater for all levels of experience and our DT curriculum allows students to succeed regardless of their background or previous experience. During Year 7 we work to build confidence and knowledge through focused tasks which contain the key building skills for all other DT work. Students are taught to measure, mark and shape a range of materials and how to use CAD/CAM to make high quality products. As a student progresses through KS3, they are set more demanding tasks that require greater skill and creativity. In year 8 students use a variety of engineering techniques (jigs and templates) to facilitate quantity manufacturing of components and they are set an individual design challenge that further encourages their understanding of CAD. In year 9 students are set the challenge of designing and making their own product and then testing solutions against a set design criterion. At KS3 we assess their work in three key areas-**Designing, Making** and **Evaluation.** The DT curriculum is supported through a good level of extra-curricular provision which includes lunchtime clubs and an open door policy for students to freely explore the world of Design and Technology.

At KS4 students are encouraged to take greater responsibility for their own learning and creativity is keenly promoted. During year 10, students are supported through a number of focused practical tasks that contain a refreshing degree of creative freedom. In our first project they will use a center lath and vertical milling machine to help manufacture a 'Nut Cracker', made entirely from aluminum. The handle is designed using CAD and cut by hand using a broad range of craft tools. Students are then set the challenge to design a product that reflects the work of others and finally, they are given the opportunity to make a product from recycled materials. These year 10 projects deliver an essential skill base from which, students can adapt when tackling the year 11 NEA. We continue to develop our exemplar peer assessment techniques and students are encouraged to support each other with the theoretical, practical and coursework elements of the course. We continue to support the work of students across the school in extra-curricular activities for example open workshop sessions, the F1 challenge, EPQ's and science based practical experiments. We also actively inform and discuss with student's opportunities for university courses and apprenticeship schemes.

Key Stage 3

Plan for 10 lessons per group per year.

Year 7	Year 8	Year 9
HEALTH & SAFETY		
CREATIVITY RESPONSIBILITY COMMUNICATION		
PENCIL BOX	**BIRD BOX**	**GADGET HOLDER**
Measuring, marking out and cutting using a variety of tools. Assembling through gluing and clamping. Sanding and finishing. Designing using CAD and cutting using the laser cutter. Recording work in workbook. Individual essay-CAD/CAM.	Measuring, marking out and cutting using a greater variety of tools and materials-wood, metal and plastic. Use of templates and machine fixtures to facilitate quantity manufacture. Producing basic constructional joints in wood. Assembling through gluing and clamping. Sanding and finishing. Individual design challenge using CAD.	Individual design and make challenge. Project to design, develop and manufacture a 3D gadget holder based on a pre-constructed design brief and specification. CAD-use of 2D Design and CAD-laser cutter to manufacture product. Ideas developed through a series of scaled paper prototypes.

Key Stage 4 – AQA GCSE Exam Board

5 lessons per fortnight per year.

YEAR 10	YEAR 11
HEALTH & SAFETY	
CREATIVITY RESPONSIBILITY COMMUNICATION	
5 lessons per fortnight-4 practical and 1 theory	**5 lessons per fortnight-3 NEA and 2 theory/exam prep**
Project 1 Metal **Aluminium Nut Cracker.** Use of a range of tools and machinery to produce a 3 part (body, screw, handle) nut cracker. Centre lathe, milling m/c, taps & dies, files. CAD to design handle, solid rivets etc. **Essay-Quantity manufacturing.** **Project 2 Wood** Box re-purposing project. Manufacture wooden box the change to suit individual re-purposing. Design, research etc.. **Essay-Product analysis.** **Project 3 Plastic** **Test tube holder.** CAD/CAM. Development of a product through prototyping. Item based on artist, architecture or design classic. **Essay-Study of the work of a chosen designer/artist**	**NEA-start June 1st finish Feb half term.** **2 lessons per fortnight for theory/exam practice.**